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**Original Article**

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**Prevalence of vulnerability for bipolar spectrum disorder among students of pakistan**Shumaila Muhammad Iqbal<sup>1\*</sup>, Raza-Ur-Rahman<sup>2</sup>, Muhammad Saad<sup>3</sup>, Jamal Farid<sup>4</sup>, Sadia Zafar<sup>5</sup>*(Received: 20Oct 2014; Revised: 20Oct 2014; Accepted: 11Nov 2014)*

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**Abstract**

**Introduction:** Bipolar Affective Disorder is cyclic swinging of mood between mania or hypo-mania and depression. Lifetime prevalence of bipolar disorder is 2.4%. A numbers of risk factors are associated with bipolar disorders including age, sex, and genetic predisposition, environmental factors and socio-economic status. The main objective of the conducted study was to assess vulnerability for bipolar spectrum disorder among the students of different Pakistani institutes.

**Methods:** This cross sectional survey was conducted in different undergraduate and postgraduate institutes of Karachi, Lahore and Islamabad. Students of both genders having age 18 or above fulfilling the inclusion criteria were included in this study after verbal consent. 668 students included in this study were given a Mood Disorder Questionnaire, 634 students returned the filled questionnaire. Out of which, 10 questionnaires were discarded due to their inappropriate filling giving an overall usable return rate of 93.4 % (624 out of 668) which was further used for data analysis.

**Results:** On screening of students included in study (624) the vulnerability for BSD was positive in 89 students (14.3%). Among the 89 students who were screened positive, 39 students were males (43.8%) and 50 were females (56.2%). The vulnerability for BSD was most common in student group of 20-21 year old. The family history of psychiatric illness was found to be positive in 39 students (43.8%). The diagnosis of bipolar disorders was also made by consultant psychiatrist in 28 (31.5%) students.

**Conclusion:** The estimated rate of prevalence for bipolar spectrum disorder among students of Pakistan is 14.3%. No significant difference in prevalence of BSD was observed in either gender. However, the age group of 20-21 years was the most affected one. Genetic influence was found to have an impact on the prevalence rate.

**Declaration of Interest:** None.

**Keywords:** Bipolar Disorder, Prevalence, Risk Factors.

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**Introduction**

Bipolar Disorder is characterized by cyclic swinging of mood between mania or hypo-mania and depression. According to World Health Organization's collaborative study conducted in 11 coun-

tries, the lifetime prevalence of bipolar disorder come out to be 2.4% worldwide, being highest in U.S.A (4.4%) and lowest in India (0.1%) (1).

A numbers of risk factors are associated with bipolar disorders. These include age, sex, and genetic predisposition, environmental factors and socio-economic status (2). Epidemiological Catchment Area (ECA) study found 18 to 27 years of age as the median age for the onset for Bipolar Spectrum Disorder (BSD)(2). While, National Co-morbidity Survey (NCS) report and The New York Times report mentioned 21 to 25 years as the median age

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for the onset (2, 3). Bipolar disorders manifest in both the genders equally (2, 3) with family history as a strong determining factor (4, 5). Males have much earlier onset of disease as compared to females.

No specific lab tests are available for the diagnosis of Bipolar Spectrum Disorder (BSD), therefore, for early diagnosis a standardized Mood Disorder Questionnaire (MDQ) has been developed that has been used in many studies (6, 7).

The first episode of mood disorder usually occurs before the age of 25, mostly as depression. Usually the correct diagnosis of bipolar is missed until a clear manic episode is achieved typically in early adulthood period, the time when individuals are getting enrolled into colleges and universities. The object of the underlying survey based research is to determine the prevalence of vulnerability for bipolar spectrum disorder among the students belonging to the educational institutes of three big cities of Pakistan namely Lahore, Karachi and Islamabad. The waxing and waning mood of students due to bipolar disorder has an impact on their curricular and non-curricular activities and since there is little awareness among the student community regarding these mental disorders, this research aims to enlighten the vulnerability for bipolar disorders in student population as no such estimations were made previously at students' level in Pakistan.

## Methods

This was a cross-sectional survey, with the sample technique convenient sampling. The duration of study was from 1<sup>st</sup> April, 2012 till 1st September, 2012. Using Open EPI, version 3, Open Source Calculator with 95% Confidence Interval (C.I), 2% margin of error (d) and 3.4% (8) prevalence (p), the sample size (n) calculated is 315 (minimum). The subjects (students) for the study were selected from the educational institutes of Karachi, Lahore and Islamabad at under graduate and post-graduate levels. Three institutes were selected from Karachi and Lahore each and two from Islamabad.

Minimum 70 students were recruited for research from each educational institute. Students of age eighteen or above were selected. Students indulging in psychotic substances and those who were with any sort of medical illnesses, were excluded.

After permission from head of each institute, researchers in their respective cities approached the educational centers on predefined dates.

The students present on that date were invited to participate in the survey. Participants who fulfill inclusion and exclusion criteria and who gave consent to participate in survey were given the MDQ that took around five minutes to complete. Note that all the subjects were assisted by the researchers in the filling of their questionnaires at each step. After collection, the data was entered in SPSS (version 16.0) and analyzed. The Mood Disorder Questionnaire has been used for the screening of Bipolar disorders. This tool has been used in many clinical studies and found to have good reliability and validity (6, 7, 9). The Mood Disorder Questionnaire comprises 13 Yes/No questions about symptoms as per DSM-IV criteria and clinical experience. Additionally, two more questions are asked for screening purpose. The first question is to inquire about the co-occurrence of the defined symptoms and the secondly about the severity of the symptoms (ranging from 'no problem' to 'serious problem'). An individual is screened positive if (1) he/she responds affirmatively for 7 or more symptoms, (2) there is co-occurrence of the symptoms and (3) the severity of symptoms is either moderate or very serious. Further questions are asked regarding family history of psychotic illnesses and previous health professional diagnosis of manic-depressive illness (10). Data was analyzed using SPSS software (version 16.0). Categorical data was presented as proportion and frequency while any significance of difference was analyzed using students T test/ Chi-square test. P value less than 0.05 was considered as significant. Ethical approval for the study was taken from Institutional Review Board of Dow University of Health Sciences Karachi. No conflict of interest was there.

## Results

For the given survey based research 668 students (subjects) were approached and given MDQ in aforementioned cities of Pakistan. Total 634 students were the returners of MDQ and out of those 10 were discarded due to their inappropriate filling. Hence, data based on information provided by 624 participants was included for final analysis. The ratio of positive screens among the subjects included in the study was found to be 14.3% (89 out of 624 subjects) table 1.

Table 1. Vulnerability for BSD in different institutions of Pakistan

City	Institutes	No of students screened		No of the students vulnerable for BSD		P value
		(n)	(%)	(n)	(%)	
Karachi	DOW Medical College	77	12.7	10	11.2	0.001
	Ziauddin Medical College	73	13.5	3	3.4	
	Institute of Business Administration	70	11.7	20	22.5	
Lahore	Punjab University	80	12.3	11	12.4	
	Sharif Medical And Dental College	86	11.2	19	21.3	
	University Of Engineering And Technology, Lahore	75	12.8	18	20.2	
Islamabad	Islamabad Medical And Dental College	79	13.8	7	7.9	
	Margalla University Of Health Sciences	84	11.2	1	1.1	
Total	8	624	100	89	100	

Out of those 89 positive screened students 49 were non-medical students while the remaining 40 positive screened were medical students. graph 1. Out of those 89 students who were screened positive by MDQ 39 (43.8%) students were male and 50 (56.2%) students were female .graph 2. Using Chi-

square Test the prevalence of vulnerability for bipolar disorders for male and female was insignificant (P value 0.754) The most affected age group for positive screening by MDQ was found to be 20-21 years of age. table 2.

Table 2. Vulnerability of different age groups for BSD

Age group	No of students screened		No of the students vulnerable to BSD		P value
	(n)	(%)	(n)	(%)	
18-19	192	30.8	28	31.5	0.187
20-21	276	44.2	44	49.4	
22-23	123	19.7	17	19.1	
24-25	29	4.6	0	0	
26-27	4	0.6	0	0	

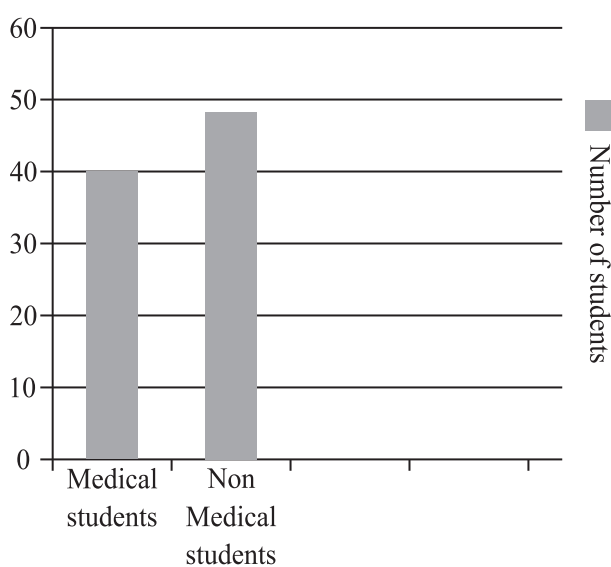


Figure 1. Professional break up for the students vulnerable to BSD

39 (43.8%) students screened positive also mentioned a positive family history for other psychotic illnesses. table 3.

Table 3. Family history of psychotic illnesses in positive screened

	No of students	Family history of psychotic illness	P value
positive	89	39	0.10
negative	535	50	
Total students	624	89	

28 (31.5%) students with a positive screening result for MDQ reported a previous health professional diagnosis for manic-depressive illness while 61 (68.5%) students with a positive screening denied any such diagnosis. Out of the 89 students who were screened positive by MDQ, 63 (70.8%) students mentioned moderate degree of problems in their daily lives due to their symptoms while 26 (29.2%) students reported severe problems due to their symptoms in their daily routines.

## Conclusion

The overall percentage of positive screened subjects (14.3%) suggests a significant frequency for bipolar disorders among the student community of Pakistan. The prevalence of bipolar disorders in this study is much higher as compared to previous screening studies done (11, 12, 13). This variation is probably due to either difference in sample population or socio economic culture or both. Also the other studies were on adult population while this study was done on student population.

A slightly higher prevalence rate was found among females as compared to males (56.2% vs. 43.8.5) which was statistically insignificant and confirmed the equal prevalence of bipolar disorders as reported in other studies (14). The most affected age group of BSD was found to be 20-21 years of age. This is concurrent with the various past demographic studies indicating the onset of symptoms at an early adult stage (1, 3, 15). In this study more than one third of the subjects who were screened positive for BSD gave a family history of psychiatric illnesses indicating a strong genetic lineage. Among those with positive family histories, more than half were males, which may be an indication of an X-linked pattern of inheritance (16,17) for such disorders.

Out of those who were screened positive for BSD only 31.5% were found to have had an initial health professional diagnosis for manic-depressive illness. This is clinically significant as many of the cases are still undiagnosed which can lead to worse clinical, educational and social outcomes for such patients (18). WHO in one of its surveys has already pointed towards the iceberg for such manic depressive illnesses (1).

This study is limited only to the positive screening for bipolar disorders and not the actual diagnosis

because the data collecting tool(MDQ) used for this study has its significance only in the rough estimation of BSD. However, MDQ has been used in the various previous demographic studies because of its timely need and its ability of an early diagnosis for such biphasic disorders (7). Therefore the estimated prevalence (14.3%) of vulnerability for BSD among the students of Pakistan is conservative and further detailed procedures are required to confirm its accuracy.

Since, the students were the only subjects of the study, their stressful mental status at the time of filling MDQs could have had an impact on prevalence rate of positive screens. The study is again, limited in its result, as no specification for age and gender was made while choosing the subjects for collecting data from different cities. Such an elevated positively screened rate in student community calls for the urgent attention into the matter by their families with the collaboration of their school's teaching staff and mental health institutes.

The estimated rate of prevalence for bipolar spectrum disorder among students of Pakistan is 14.3%. No significant difference in prevalence of BSD was observed in either gender. However, the age group of 20-21 years was the most affected one. Genetic influence was found to have an impact on the prevalence rate.

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